

GenCore version 5.1.3
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OM nucleic - nucleic search, using sw model

Run on: February 16, 2003, 15:49:44 : Search time 215.022 Seconds
(without alignments)
14704.597 Million cell updates/sec

Title: US-09-497-967-3

Perfect score: 1404

Sequence: 1 atgaaataaataattttagt.....tgatttcttattattatta 1404

Scoring table: IDENTITY_NUC

Gapop 10.0 , Gapext 1.0

Searched: 2185239 seqs, 1125999159 residues

Total number of hits satisfying chosen parameters: 4370478

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : N_Geneseq_101002.*

1:	/SIDS2/gcgdata/geneseq/geneseq-emb1/NA1980.DAT.*
2:	/SIDS2/gcgdata/geneseq/geneseq-emb1/NA1981.DAT.*
3:	/SIDS2/gcgdata/geneseq/geneseq-emb1/NA1982.DAT.*
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10:	/SIDS2/gcgdata/geneseq/geneseq-emb1/NA1989.DAT.*
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23:	/SIDS2/gcgdata/geneseq/geneseq-emb1/NA2001B.DAT.*
24:	/SIDS2/gcgdata/geneseq/geneseq-emb1/NA2002.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1404	100.0	1404	21	AAA97038
2	1404	100.0	1410	21	AAA97060
3	1402.4	99.9	1404	21	AAA52136
4	782.6	55.7	1404	21	AAA97040
5	782.6	55.7	1410	21	AAA97089
6	781	55.6	1404	21	AAA97065
7	252.6	18.0	1326	21	AAA97036
8	252.6	18.0	2486	21	AAA97037
9	251	17.9	1326	21	AAA52135
					55kd i-antigen nuc
					55kd i-antigen cod
					55 kda i-antigen g
					55kd i-antigen syn
					Synthetic I. Multi
					Synthetic 55kd i-a
					48kd i-antigen nuc
					Nucleotide sequenc
					48 kda i-antigen g

10	251	17.9	2811	21	AAA52134
11	73	5.2	138	21	AAA97075
	68.2	4.9	123	21	AAA97076
C 12	66.2	4.7	104	21	AAA97072
C 13	62.8	4.5	100	21	AAA97073
C 14	62.8	4.5	100	21	AAA97080
C 15	62.8	4.5	100	21	AAA97080
16	60	4.3	60	21	AAA97041
17	60	4.3	60	21	AAA97042
C 18	60	4.3	1635	22	ABA49946
C 19	60	4.3	1635	22	ABA67865
C 20	60	4.3	1635	22	ABA34921
C 21	60	4.3	1635	22	ABA16270
C 22	60	4.3	1635	22	AAK42016
C 23	60	4.3	1635	22	AAI22780
C 24	60	4.3	1635	22	AAI18082
C 25	60	4.3	1635	22	AAI08454
C 26	60	4.3	1635	24	ABS16047
C 27	60	4.3	1973	22	ABA44805
C 28	60	4.3	1973	22	ABA55261
C 29	60	4.3	1973	22	ABA55005
C 30	60	4.3	1973	22	AAK03514
C 31	60	4.3	1973	22	AAK28970
C 32	60	4.3	1973	22	AAI13556
C 33	60	4.3	1973	22	AAI34918
C 34	60	4.3	1973	22	AAI03446
C 35	60	4.3	1973	24	ABS03504
36	57.6	4.1	117	21	AAA97071
C 37	56.6	4.0	95	21	AAA97074
C 38	56.6	4.0	8201	21	AAAB8864
C 39	56.6	4.0	8201	24	AB073537
C 40	56.2	4.0	94	21	AAA97079
C 41	55.4	3.9	2215	24	AB199688
C 42	53.4	3.8	95	21	AAA97078
C 43	53.4	3.8	10266	17	AAQ33007
C 44	53.4	3.8	14704	13	AAQ20685
45	52.6	3.7	92	21	AAA97087

ALIGNMENTS

RESULT 1
AAA97038

ID AAA97038 standard; DNA; 1404 BP.

AC AAA97038;

XX 18-DEC-2000 (first entry)

DT 55kd i-antigen nucleotide sequence.

XX Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;
white spot disease; freshwater fish; immune response; infection control.

XX Ichthyophthirius multifiliis.

XX WO200046373-A1.

XX 10-AUG-2000.

PD 04-FEB-2000; 2000MO-US02962.

XX 04-FEB-1999; 99US-0118634.

PR 02-MAR-1999; 99US-0122372.

PR 17-MAR-1999; 99US-0124905.

XX 27-APR-1999; 99US-0131121.

PA (UYGE-) UNIV GEORGIA RES FOUND INC.

PA (CORR) CORNELL RES FOUND INC.

PA (CLAR/) CLARK T. G.

PA (DICK/) DICKERSON H W.

PA (LINT/) LIN T.

XX

PI	Clark TG, Dickerson HW, Lin T;	
XX	WPI; 2000-506071/45.	
DR		
XX	Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius	
PT	multifiliis, useful for prophylaxis and treatment of Ichthyophthirius	
PT	Infection in fish	
XX		
PS	Claim 5; Figure 3; 144pp; English.	
XX		
CC	This invention relates to novel i-antigen polypeptide sequences.	
CC	i-antigens or immobilisation antigens are common to a variety of	
CC	hymenostomid ciliates and their expression varies in response to	
CC	environmental stimuli. This invention relates to i-antigens in	
CC	Ichthyophthirius multifiliis, a protozoan which is an obligate parasite	
CC	of freshwater fish causing ichthyophthiriasis or white spot disease. The	
CC	invention includes two polypeptide and polynucleotide sequences for two	
CC	i-antigens, of 48 and 55 kD. Also included in the invention are	
CC	antibodies capable of binding to the nucleotide sequences and a method	
CC	for identifying I. multifiliis serotypes using the nucleotide sequences.	
CC	A composition (containing the i-antigen nucleotide) capable of eliciting	
CC	an immune response in fish is useful for prophylaxis, treatment or for	
CC	controlling I. multifiliis infection in fish. Polynucleotide or protein	
CC	vaccines comprising a portion of the amplified product encoding an	
CC	antigenic i-antigen polypeptide obtained is also useful for treating or	
CC	preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,	
CC	and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene	
CC	fragments identified in the invention. Sequences AAA97043-A97064	
CC	(excluding AAA97060) and AAA97071-A97088 represent primers used in the	
CC	isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and	
CC	AAB25893-B25906 represent i-antigen protein and peptide sequences.	
XX		
SQ	Sequence 1404 BP; 447 A; 240 C; 257 G; 460 T; 0 other;	
	Query Match 100.0%; Score 1404; DB 21; Length 1404;	
	Best Local Similarity 100.0%; Pred. No. 1.5e-301;	
	Matches 1404; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	
Qy	1 ATGAAATATATTTAGTAATATTGATTATTTTCATTTATTCATTAATTAATTAATCT 60	
Db	1 ATGAAATATATTTAGTAATATTGATTATTTTCATTTATTCATTAATTAATTAATCT 60	
Qy	61 GCTAATTTGCTGTGGAACTGAACTAACACAGCCGGATAGTTGATGATCTAGAACT 120	
Db	61 GCTAATTTGCTGTGGAACTGAACTAACACAGCCGGATAGTTGATGATCTAGAACT 120	
Qy	121 CCTGCAATTTGCTGTAATTTGTAGAAAACCTTTTATATAAATGCTGCTTTCGTT 180	
Db	121 CCTGCAATTTGCTGTAATTTGTAGAAAACCTTTTATATAAATGCTGCTTTCGTT 180	
Qy	181 CCTGTGCTAGTGTACACCTTGTCCTATAAAAAAGATGCTGGTCTTAACCAAT 240	
Db	181 CCTGTGCTAGTGTACACCTTGTCCTATAAAAAAGATGCTGGTCTTAACCAAT 240	
Qy	241 CCACCTGCTACTGTAATTTAGTCACATATGTAACGTTAAATGCCCTGCTGGTACCGCA 300	
Db	241 CCACCTGCTACTGTAATTTAGTCACATATGTAACGTTAAATGCCCTGCTGGTACCGCA 300	
Qy	301 ATTGAGGTGGAGCAACAGATTATGACAGCAATATACAGCAATGCTGTTAATTTGAGAAAT 360	
Db	301 ATTGAGGTGGAGCAACAGATTATGACAGCAATATACAGCAATGCTGTTAATTTGAGAAAT 360	
Qy	361 AATTTTATTAATGAAATGCTCCAAATTTTAATGCAAGGTGCTAGTACATGCACAGTTGT 420	
Db	361 AATTTTATTAATGAAATGCTCCAAATTTTAATGCAAGGTGCTAGTACATGCACAGTTGT 420	
Qy	421 CCGGTAACACAGATTTGGTGGCAATTTGACTGCTGGTAAATGCCGTACCATTGCGCATAA 480	
Db	421 CCGGTAACACAGATTTGGTGGCAATTTGACTGCTGGTAAATGCCGTACCATTGCGCATAA 480	
Qy	481 TGTACAGTCCGATGCTCTACTGGTACTGCACTTGATGATGGAGTAACTACTGATTATGTT 540	
Db	481 TGTACAGTCCGATGCTCTACTGGTACTGCACTTGATGATGGAGTAACTACTGATTATGTT 540	

Qy	541 AGATCATTTACAGAAATGTTAAATGTAGACTTAACCTTTTACTATAATGTTAAATGGT 600	
Db	541 AGATCATTTACAGAAATGTTAAATGTAGACTTAACCTTTTACTATAATGTTAAATGGT 600	
Qy	601 AATACTCCCTTTCAATCCAGGTAAAGTTAAATGCACACCTTGTCCGGCAATTAACACCTGCT 660	
Db	601 AATACTCCCTTTCAATCCAGGTAAAGTTAAATGCACACCTTGTCCGGCAATTAACACCTGCT 660	
Qy	661 AATGTTGCTTAAGCTACTTTAGGTAATGATGCTACAATAACCGCATATATGTAAGCTTGCA 720	
Db	661 AATGTTGCTTAAGCTACTTTAGGTAATGATGCTACAATAACCGCATATATGTAAGCTTGCA 720	
Qy	721 TGCCCTGATGGTACTATAAGTCTCTGGAGTAAATAATTTGGGTAGCACAAAACACTGAA 780	
Db	721 TGCCCTGATGGTACTATAAGTCTCTGGAGTAAATAATTTGGGTAGCACAAAACACTGAA 780	
Qy	781 TGTACTAATTTGCTCCCTAACCTTTTACATAATATGCTCCCTAAATTTCAATCCAGGTAAT 840	
Db	781 TGTACTAATTTGCTCCCTAACCTTTTACATAATATGCTCCCTAAATTTCAATCCAGGTAAT 840	
Qy	841 AGTACATGCTACTCTGCCAGCAATAAAGATTATGGTGTCTGAAGCCACTGCAGGTGGT 900	
Db	841 AGTACATGCTACTCTGCCAGCAATAAAGATTATGGTGTCTGAAGCCACTGCAGGTGGT 900	
Qy	901 GCCGCTACTTTAGCCAAATAATGTAATTTGATGATGCTGCTGCTGCTGCTGCTGCTGCT 960	
Db	901 GCCGCTACTTTAGCCAAATAATGTAATTTGATGATGCTGCTGCTGCTGCTGCTGCTGCT 960	
Qy	961 GGAGCAACTAATTTATGTAATTTATTAACAGAAATGCTCAAAATTTGCTGCTGCTGCTGCT 1020	
Db	961 GGAGCAACTAATTTATGTAATTTATTAACAGAAATGCTCAAAATTTGCTGCTGCTGCTGCT 1020	
Qy	1021 TTTGATGGTAAATTTCTAGGAGGAACTAGTAGATGCAAAAGCATGTCCAGCAATAATAA 1080	
Db	1021 TTTGATGGTAAATTTCTAGGAGGAACTAGTAGATGCAAAAGCATGTCCAGCAATAATAA 1080	
Qy	1081 GTTTAAGCGCTGTAGCAACTGCAAGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT 1140	
Db	1081 GTTTAAGCGCTGTAGCAACTGCAAGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT 1140	
Qy	1141 GAATGCCCTGCTGGTACTGCTACCCGATGGAACAACTACTTCTTATTAATTAAGCAGCA 1200	
Db	1141 GAATGCCCTGCTGGTACTGCTACCCGATGGAACAACTACTTCTTATTAATTAAGCAGCA 1200	
Qy	1201 TCTGAATGTTAAATGCTGCCAATTTTATACACAAATAAATTAACATGATTTGGGTAGCA 1260	
Db	1201 TCTGAATGTTAAATGCTGCCAATTTTATACACAAATAAATTAACATGATTTGGGTAGCA 1260	
Qy	1261 GGATTCATACATGCTACTAGTTCTTAATAAAAAATTAACCTTCTGGCGCTGAAGCTAATTTA 1320	
Db	1261 GGATTCATACATGCTACTAGTTCTTAATAAAAAATTAACCTTCTGGCGCTGAAGCTAATTTA 1320	
Qy	1321 CCTGAATCTGCTAAAAAATAATATATGTTGATTTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1380	
Db	1321 CCTGAATCTGCTAAAAAATAATATATGTTGATTTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1380	
Qy	1381 TTATTGATTTCTTATTATTATTA 1404	
Db	1381 TTATTGATTTCTTATTATTATTA 1404	
	RESULT 2	
	AAA97060 standard; DNA; 1410 BP.	
AC	AAA97060;	
XX	18-DEC-2000 (first entry)	
DE	55kD i-antigen coding region.	
KW	Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;	

white spot disease; freshwater fish; immune response; infection control.

Ichthyophthirius multifiliis.

W0200046373-A1.

10-AUG-2000.

04-FEB-2000; 2000WO-US02962.

04-FEB-1999; 99US-0118634.

02-MAR-1999; 99US-012372.

17-MAR-1999; 99US-0124905.

27-APR-1999; 99US-0131121.

(UYGE-) UNIV GEORGIA RES FOUND INC.

(CORR.) CORNELL RES FOUND INC.

(CLARK/) CLARK T G.

(DICK/) DICKERSON H W.

(LIN/) LIN T.

Clark TG, Dickerson HW, Lin T;

WPI; 2000-506071/45.

Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius

multifiliis, useful for prophylaxis and treatment of Ichthyophthirius

infection in fish

Disclosure: Figure 2; 144pp; English.

This invention relates to novel i-antigen polypeptide sequences.

I-antigens or immobilisation antigens are common to a variety of

hymenostomatid ciliates and their expression varies in response to

environmental stimuli. This invention relates to i-antigens in

Ichthyophthirius multifiliis, a protozoan which is an obligate parasite

of freshwater fish causing ichthyophthiriasis or white spot disease. The

invention includes two polypeptide and polynucleotide sequences for two

i-antigens, of 48 and 55 kD. Also included in the invention are

antibodies capable of binding to the nucleotide sequences and a method

for identifying i. multifiliis serotypes using the nucleotide sequences.

A composition (containing the i-antigen nucleotide) capable of eliciting

an immune response in fish is useful for prophylaxis, treatment or for

controlling i. multifiliis infection in fish. Polynucleotide or protein

vaccines comprising a portion of the amplified product encoding an

antigenic i-antigen polypeptide obtained is also useful for treating or

preventing i. multifiliis infection in fish. Sequences AAA97036-A97042,

and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene

fragments identified in the invention. Sequences AAA97043-A97064

(excluding AAA97060) and AAA97071-A97088 represent primers used in the

isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and

AAB25893-B25906 represent i-antigen protein and peptide sequences.

Sequence 1410 BP; 449 A; 240 C; 259 G; 462 T; 0 other;

KW	white spot disease; freshwater fish; immune response; infection control.	
XX	Ichthyophthirius multifiliis.	
OS	W0200046373-A1.	
XX	10-AUG-2000.	
PN	04-FEB-2000; 2000WO-US02962.	
XX	04-FEB-1999; 99US-0118634.	
PR	02-MAR-1999; 99US-012372.	
PR	17-MAR-1999; 99US-0124905.	
XX	27-APR-1999; 99US-0131121.	
XX	(UYGE-) UNIV GEORGIA RES FOUND INC.	
PA	(CORR.) CORNELL RES FOUND INC.	
PA	(CLARK/) CLARK T G.	
PA	(DICK/) DICKERSON H W.	
PA	(LIN/) LIN T.	
XX	Clark TG, Dickerson HW, Lin T;	
PI	WPI; 2000-506071/45.	
XX	Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius	
DR	multifiliis, useful for prophylaxis and treatment of Ichthyophthirius	
XX	infection in fish	
PT	Disclosure: Figure 2; 144pp; English.	
PT	This invention relates to novel i-antigen polypeptide sequences.	
XX	I-antigens or immobilisation antigens are common to a variety of	
CC	hymenostomatid ciliates and their expression varies in response to	
CC	environmental stimuli. This invention relates to i-antigens in	
CC	Ichthyophthirius multifiliis, a protozoan which is an obligate parasite	
CC	of freshwater fish causing ichthyophthiriasis or white spot disease. The	
CC	invention includes two polypeptide and polynucleotide sequences for two	
CC	i-antigens, of 48 and 55 kD. Also included in the invention are	
CC	antibodies capable of binding to the nucleotide sequences and a method	
CC	for identifying i. multifiliis serotypes using the nucleotide sequences.	
CC	A composition (containing the i-antigen nucleotide) capable of eliciting	
CC	an immune response in fish is useful for prophylaxis, treatment or for	
CC	controlling i. multifiliis infection in fish. Polynucleotide or protein	
CC	vaccines comprising a portion of the amplified product encoding an	
CC	antigenic i-antigen polypeptide obtained is also useful for treating or	
CC	preventing i. multifiliis infection in fish. Sequences AAA97036-A97042,	
CC	and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene	
CC	fragments identified in the invention. Sequences AAA97043-A97064	
CC	(excluding AAA97060) and AAA97071-A97088 represent primers used in the	
CC	isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and	
CC	AAB25893-B25906 represent i-antigen protein and peptide sequences.	
XX	Sequence 1410 BP; 449 A; 240 C; 259 G; 462 T; 0 other;	
SQ		
Query Match	100.0%; Score 1404; DB 21; Length 1410;	
Best Local Similarity	100.0%; Pred. No. 1.5e-301;	
Matches 1404; Conservative	0; Mismatches 0; Indels 0; Gaps 0;	
Qy	1 ATGAAAAATAATATTTAGTAAATATTTGATTTATTTTCAATTTATCAATTAATTAATCT 60	
Db	1 ATGAAAAATAATATTTAGTAAATATTTGATTTATTTTCAATTTATCAATTAATTAATCT 60	
Qy	61 GCTAATTTCTGTTGGAACTGAACTAACACACCGCGATGAAGTTGATGATCAGGAAC 120	
Db	61 GCTAATTTCTGTTGGAACTGAACTAACACACCGCGATGAAGTTGATGATCAGGAAC 120	
Qy	121 CCTCAAAATCTGTTAATCTGACAAAACCTTTTATTAATTAATGCTGCTTCGTT 180	
Db	121 CCTCAAAATCTGTTAATCTGTTAATCTGACAAAACCTTTTATTAATTAATGCTGCTTCGTT 180	
Qy	181 CCTGGTCTAGTACGTGTACACCTTTGTCATAAAAAAGATGCTGCTTAACCAAT 240	
Db	181 CCTGGTCTAGTACGTGTACACCTTTGTCATAAAAAAGATGCTGCTTAACCAAT 240	

Db	181 CCTGGTCTAGTACGTGTACACCTTTGTCATAAAAAAGATGCTGCTTAACCAAT 240	
Qy	241 CCACCTGCTACTGCTAAATTTAGTACATAATGTAACGTTAAATGCCCTGCTGGTACCGCA 300	
Db	241 CCACCTGCTACTGCTAAATTTAGTACATAATGTAACGTTAAATGCCCTGCTGGTACCGCA 300	
Qy	301 ATTGCAGGTGGAGCAACAGATTTATGCAGCAATAATACAGAAATGTGTTAATTTAGAAAT 360	
Db	301 ATTGCAGGTGGAGCAACAGATTTATGCAGCAATAATACAGAAATGTGTTAATTTAGAAAT 360	
Qy	361 AATTTTATTAATGAAATGCTCCAAATTTTAAATGCAGGTGCTAGTACATGCACAGCTTGT 420	
Db	361 AATTTTATTAATGAAATGCTCCAAATTTTAAATGCAGGTGCTAGTACATGCACAGCTTGT 420	
Qy	421 CCGTAAACAGAGTTGGTGGTGCATTTGACTGCTGTAATGCGCTACCATAGTCCGATAA 480	
Db	421 CCGTAAACAGAGTTGGTGGTGCATTTGACTGCTGTAATGCGCTACCATAGTCCGATAA 480	
Qy	481 TGTAACTGCGCATGCTCCTACTGGTACTGTCACCTTGTATGATGAGTAACTACTGATTAT 540	
Db	481 TGTAACTGCGCATGCTCCTACTGGTACTGTCACCTTGTATGATGAGTAACTACTGATTAT 540	
Qy	541 AGATCAATTCACAGAAATGTTAAATGTAAGTAACTTTTACTATAATGCTTAATTAATGGT 600	
Db	541 AGATCAATTCACAGAAATGTTAAATGTAAGTAACTTTTACTATAATGCTTAATTAATGGT 600	
Qy	601 AATACTCCTTTCAATCCAGGTAAAGTTAATGCACACCTTTGTCGGCAATTAACACCTGCT 660	
Db	601 AATACTCCTTTCAATCCAGGTAAAGTTAATGCACACCTTTGTCGGCAATTAACACCTGCT 660	
Qy	661 AATGTTGCTTAAGCTACTTTAGTAAATGTAAGTAACTTTTACTATAATGCTTAATTAATGGT 720	
Db	661 AATGTTGCTTAAGCTACTTTAGTAAATGTAAGTAACTTTTACTATAATGCTTAATTAATGGT 720	
Qy	721 TGCCTGATGCTACTATAAGTGCCTGGAGTAAATTAATTTGGGTAGCACAAAACACTGAA 780	
Db	721 TGCCTGATGCTACTATAAGTGCCTGGAGTAAATTAATTTGGGTAGCACAAAACACTGAA 780	
Qy	781 TGTACTAATTTGCTCCTCACTTTTACAATAATAATGCTCCTTAATTTCAATCCAGGTAAT 840	
Db	781 TGTACTAATTTGCTCCTCACTTTTACAATAATAATGCTCCTTAATTTCAATCCAGGTAAT 840	
Qy	841 AGTACATGCTTACCTCCAGCAATAATAAGATTAATGCTGCTAGAGCCACTGCAGGTGGT 900	
Db	841 AGTACATGCTTACCTCCAGCAATAATAAGATTAATGCTGCTAGAGCCACTGCAGGTGGT 900	
Qy	901 GCGCTACTTTAGCCAAATAATGTAATTTGTCATGCGCTGATGCTGCAATTTGCTAGT 960	
Db	901 GCGCTACTTTAGCCAAATAATGTAATTTGTCATGCGCTGATGCTGCAATTTGCTAGT 960	
Qy	961 GGAGCACTAATTTATGTAATTTATTAACAGAAATGCTAAATTTGCTGCTGCTAACTTTTAT 1020	
Db	961 GGAGCACTAATTTATGTAATTTATTAACAGAAATGCTAAATTTGCTGCTGCTAACTTTTAT 1020	
Qy	1021 TTTGATGGTAAATTTTCTAGCAGGAAGTAGTAGATGCAAAAGCATGTCAGCAATAATAA 1080	
Db	1021 TTTGATGGTAAATTTTCTAGCAGGAAGTAGTAGATGCAAAAGCATGTCAGCAATAATAA 1080	
Qy	1081 GTTTAAGGCGCTGACAGCTGCAGGTGGTACTGCTACTTTTAAATGCAATAATGCGCCCT 1140	
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Qy	1201 TCTGAATGTTTAAATGCTGCTGCAACTTTTATCTACAAAATAAACTGATTTGGGTAGCA 1260	
Db	1201 TCTGAATGTTTAAATGCTGCTGCAACTTTTATCTACAAAATAAACTGATTTGGGTAGCA 1260	
Qy	1261 GGTATTGATACATGCTACTAGTTGTAATAAAAAAATTAACCTTCTGGCGCTGAAGCTAATTTA 1320	
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QY 1321 CCTGAATCTGCTAAATAATATATATGATTCGATTTCGCTAAATTTTATCAATTCCTTA 1380
Db 1321 CCTGAATCTGCTAAATAATATATATGATTCGATTTCGCTAAATTTTATCAATTCCTTA 1380
QY 1381 TTATTGATTTCTTATATTATTATTA 1404
Db 1381 TTATTGATTTCTTATATTATTATTA 1404
RESULT 3
AAA52136
ID AAA52136 standard; DNA; 1404 BP.
XX
AC AAA52136;
XX
DT 04-DEC-2000 (first entry)
XX
DE 55 kDa i-antigen gene.
XX
KW BTU1; beta-tubulin; protein expression system; negative selection;
KW paclitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
KW live vaccine; Ichthyophthius multifiliis; immobilization-antigen;
KW i-antigen; freshwater; fish; protozoacide; ds.
XX
OS Ichthyophthius multifiliis.
XX
FH Key Location/Qualifiers
FT CDS 1..1404
FT FT /*tag= a
FT FT /codon= (seq:"TAA", aa:Gln)
FT FT /product= 55_kDa_i-antigen
FT FT /partial
XX
PN W0200046381-A1.
XX
XX 10-AUG-2000.
XX
XX 04-FEB-2000; 2000WO-US02966.
XX
XX 04-FEB-1999; 99US-0118634.
XX 02-MAR-1999; 99US-0122372.
XX 17-MAR-1999; 99US-0124905.
XX 27-APR-1999; 99US-0131121.
XX
XX (UYGE-) UNIV GEORGIA RES FOUND INC.
XX (GAER/) GAERTIG J.
XX (DICK/) DICKERSON H W.
XX (CLAR/) CLARK T G.
XX
XX Gaertig J, Dickerson HW, Clark TG;
XX
XX WPI: 2000-514962/46.
XX P-PSDB: AAY97117.
XX
XX Recombinant expression systems for expressing heterologous nucleic
XX acids and producing recombinant protein, comprises nonpathogenic
XX protozoa such as Tetrahymena resistant to paclitaxel
XX
XX Disclosure; Fig 3B; 83pp; English.
XX
XX Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and
XX BTU2), which encode identical beta-tubulin proteins. Either of these two
XX genes (but not both at once) can be disrupted without a detectable change
XX in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin
XX protein confers increased resistance to microtubule-depolymerizing drugs
XX and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
XX Cells carrying the BTU1-Ik350M allele can be transformed to paclitaxel
XX resistance by gene replacement of BTU1-Ik350M with a wild-type BTU1 gene
XX fragment, eliminating the need to incorporate a means for positive
XX selection. Where the host organism is not a T. thermophila mutant
XX containing the BTU1-Ik350M allele, BTU1::neol construct, which
XX substitutes the coding region of the neol gene (conferring resistance to

CC parmomycin) for that of BTU1, can be used to generate BTU1 gene knockouts
CC and for positive selection. Heterologous nucleic acids (especially
CC encoding antigenic polypeptides) can be inserted into a BTU gene for
CC successful cell-surface expression that is maintained by way of negative
CC selection. Preferred expression vectors disrupt the BTU1-Ik350M gene by
CC homologous recombination-mediated insertion of a heterologous nucleic
CC acid, thereby restoring resistance to paclitaxel in the resulting
CC transgenic host. Transgenic ciliated protozoa are useful as live vaccines
CC for stimulating an immune response in a vertebrate. The transgenic
CC protozoan host cells are also useful for producing polyclonal antibodies
CC (claimed). In particular, Tetrahymena expressing Ichthyophthius
CC multifiliis immobilization-antigen (i-antigen) protein on their surface
CC are effective vehicles for vaccination of freshwater fish against
CC infection by I. multifiliis.

XX
SQ Sequence 1404 BP; 447 A; 241 C; 256 G; 460 T; 0 other;

Query Match 99.9%; Score 1402.4; DB 21; Length 1404;

Best Local Similarity 99.9%; Pred. No. 3.4e-301;

Matches 1403; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 ATGAAAAATAATTTTAGTAATATTGATTATTTTCATTATTTATCAATTAATAATCT 60

Db 1 ATGAAAAATAATTTTAGTAATATTGATTATTTTCATTATTTATCAATTAATAATCT 60

QY 61 GCTAATTGCTCTGTTGGAACTGAAACTAACACAGCCGGATAGTTGATGATCTAGGAAC 120

Db 61 GCTAATTGCTCTGTTGGAACTGAAACTAACACAGCCGGATAGTTGATGATCTAGGAAC 120

QY 121 CTGCAAAATGTTAAATTTTGTAGAAAAACTTTTATTATAATATGCTGCTGCTTCGTT 180

Db 121 CTGCAAAATGTTAAATTTTGTAGAAAAACTTTTATTATAATATGCTGCTGCTTCGTT 180

QY 181 CTTGTTGCTAGTACGTTACACCTTTTCCATAAAAAAAGATGCTGCTGCTTAACCAAT 240

Db 181 CTTGTTGCTAGTACGTTACACCTTTTCCATAAAAAAAGATGCTGCTGCTTAACCAAT 240

QY 241 CCACCTGCTACTGCTAAATTTTGTAGCAATATGTAACGTTAAATGCCCTGCTGACCGCA 300

Db 241 CCACCTGCTACTGCTAAATTTTGTAGCAATATGTAACGTTAAATGCCCTGCTGACCGCA 300

QY 301 ATTGCAGTGGAGCAACAGATTATGAGCAATATATCAGCAATATGTTAATTTGAGAATT 360

Db 301 ATTGCAGTGGAGCAACAGATTATGAGCAATATATCAGCAATATGTTAATTTGAGAATT 360

QY 361 AATTTTATAATGAAAAATGCTCCAAATTTTATGAGGCTGCTAGTACATGACACGCTTGT 420

Db 361 AATTTTATAATGAAAAATGCTCCAAATTTTATGAGGCTGCTAGTACATGACACGCTTGT 420

QY 421 CCGGTAACACAGAGTTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 480

Db 421 CCGGTAACACAGAGTTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 480

QY 481 TGTAAAGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 540

Db 481 TGTAAAGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 540

QY 541 AGATCAATTCACAAATGTTAAATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 600

Db 541 AGATCAATTCACAAATGTTAAATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 600

QY 601 AATVACTCCTTTCAATCCAGTAAAGTTAATGCACACCTTGTCCGGCAATTAACCTGCT 660

Db 601 AATVACTCCTTTCAATCCAGTAAAGTTAATGCACACCTTGTCCGGCAATTAACCTGCT 660

QY 661 AATGTTGCTTAAAGCTACTTTAGGTAATGATGCTACAAATACCGCATATATGTAACCTGCA 720

Db 661 AATGTTGCTTAAAGCTACTTTAGGTAATGATGCTACAAATACCGCATATATGTAACCTGCA 720

QY 721 TGGCCTGATGCTACTATAAGTGTCTGCTGGAGTAATAATTTGGGTAGCAACAAACACTGAA 780

Db 721 TGGCCTGATGCTACTATAAGTGTCTGCTGGAGTAATAATTTGGGTAGCAACAAACACTGAA 780

XX Novel i-antigen polypeptides and polynucleotides from *Ichthyophthirius*
 PT multiliis, useful for prophylaxis and treatment of *Ichthyophthirius*
 PT Infection in fish
 XX
 PS Claim 2; Figure 3; 144pp; English.
 XX

This invention relates to novel i-antigen polypeptide sequences.
 CC i-antigens or immobilisation antigens are common to a variety of
 CC hymenostomatid ciliates and their expression varies in response to
 CC environmental stimuli. This invention relates to i-antigens in
 CC *Ichthyophthirius multiliis*, a protozoan which is an obligate parasite
 CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
 CC invention includes two polypeptide and polynucleotide sequences for two
 CC i-antigens, of 48 and 55 kD. Also included in the invention are
 CC antibodies capable of binding to the nucleotide sequences and a method
 CC for identifying i-antigen polypeptides in fish. Sequences AAA97036-A97042,
 CC an immunisation (containing the i-antigen nucleotide) capable of eliciting
 CC an immune response in fish is useful for prophylaxis, treatment or for
 CC controlling i-antigen infection in fish. Polynucleotide or protein
 CC vaccines comprising a portion of the amplified product encoding an
 CC antigenic i-antigen polypeptide obtained is also useful for treating or
 CC preventing i-antigen infection in fish. Sequences AAA97036-A97042,
 CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
 CC fragments identified in the invention. Sequences AAA97043-A97064
 CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
 CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
 CC AAB25893-B25906 represent i-antigen protein and peptide sequences.

XX Sequence 1326 BP; 371 A; 251 C; 253 G; 451 T; 0 other;

Query Match 18.0%; Score 252.6; DB 21; Length 1326;
 Best Local Similarity 56.7%; Pred. No. 1.8e-46;
 Matches 660; Conservative 0; Mismatches 394; Indels 111; Gaps 6;

QY 344 GTGTTAATGTAGATTAATTTTATATGAATAATGCTCCCAATTTTAAATGAGTGCTA 403
 DB 167 GTGCTGCTTAAGGAGAGCTAATGGTAATTAACCTTTCCGACCAATAATGCTGTAGAG 226
 QY 404 GTACATGACACAGCTTCCGGTAAACAGAGTGGTGGTCAATGACTGCTGTAATGCCG 463
 DB 227 GTATATGTGTACCATGCCAATAAATACAGAGTAGGCTGTGTACCANTGACGTGACTTAG 286
 QY 464 CTACCATAGTCCCAATATGTAACGTCGCATGCTCTACTGGTACTGCACCTTGATGAGAG 523
 DB 287 CTACTTTAGCCACATAATAGCTACTTAATGCTCTACTGGCAGCTGCACCTTGATGAGAG 346
 QY 524 TAACTACTGATTATGTTAGATCATTCACAGATGTTAAATGTAGACTTAACCTTTACT 583
 DB 347 TGACAGATGTTTGTATAGATCAGCGCATATGTTGTTAAATGCAACCTAACTTTACT 406
 QY 584 ATAATGGTAATAGGTAAATCTCCTTTCAATCCAGGTAAAGTTAATGACACACCTTGTG 643
 DB 407 ATAATGGTGGTTCCTTAAGGTGAAGCTCCTGGCGTTAAGTTTGTGCTGCTGGTGTG 466
 QY 644 CGGCAATTAACCTGCT-----AATG 664
 DB 467 CGCTGACAGGTGCTGCTGCCGCTTACTAGTTAATGTGTAACCTTGCCAACTAAACAAAACG 526
 QY 665 TTGCTTAAGCTACTTTAGGTAAATGATGCTACAATAACGCCATAATGTAACGTTGCATGCC 724
 DB 527 ATTCTCTGCCACTGCAGGTGCCCTAAGCTAATTTAGCCACATAATGTAGCAATTAATGTC 586
 QY 725 CTGATGCTACTATAAGTCTGCTCGAGT---AAATAATTTGGGTAGCACAAAACACTGAAT 781
 DB 587 CTACTGGCACTGTACTTGTATGATGATGAGTGCACACTTGTGTTTAAATACATCAGCCACATAT 646
 QY 782 GTACTAATTTGGCTCCCACTTTTACAAATAATATGCTCCCTAAT-----826
 DB 647 GTGTTAATGACAGACCTTAACCTTTTACTATAATGTTGGTGTCTCTCTTAAGGTGAAGCTCCTG 706
 QY 827 -----TCAATCCAGGTAATAGTACAT 847

DB 707 GCGTTTAAAGTTTTTGTCTGTGTGCTGCGCTGCAGGTGTTGCTGCGGTTACTAGTTAAT 766
 QY 848 GCGTACTCTTGCAGCAATAAAGATTATGGTGGTGAAGCCCACTGAGGTGTCGCCGCTA 907
 DB 767 GTGTACCTTGGCCAAATAACAAAAGGATTCCTCT---GCCACTGCAGGTGCTAAGCTA 823
 QY 908 CTTTAGCCAAATAATGTAATATTGGCATGCCCTGATGGTACTGCAATTTGCTAGTGGAGCA 967
 DB 824 ATTTAGCCACATAATGTCAGTACTTAATGTCCAACGGCAGTGCATTAAGACGAGTGA 883
 QY 968 CTAATATTGTAATATATAAACAGAAATGCTAAATTTGCTGCTGCTAACTTTTATTGATG 1027
 DB 884 CACTTGTGTTTGTAGTAATTCATCCACATAATGTTCTTAATGCTAATTAATTAATTTT 943
 QY 1028 GTAATAATTTCTAGCAGGAGAGTAGATGCAAAAGCATGTCCAGCAATAAAGTTTAAG 1087
 DB 944 ATGGTAATTTTGAAGCAGGTAAGAGTTAATGTTTAAAGTGTCCAGTAAGTAAACT---A 1000
 QY 1088 GCGCTGTAGCAACTGCAGGTGGTACTGCTACTTTAATTTGCATAATGTCCTTGAATGCC 1147
 DB 1001 CTCAGCACATGCTCCAGGTAAATGCTACTTAAGCCACATAATGTTTGACCACTGTC 1060
 QY 1148 CTGCTGGTACTGCTACTCACCGATGGAACAACATCTACTTATAAATAGCAGCATCTGAAT 1207
 DB 1061 CTGCTGGTACAGTACTGATGATGAACATCACTAATTTTGTAGCTTCCGCAACTGAAT 1120
 QY 1208 GTGTTAAATGTGCTGCCAACTTTTATCTACAAAATAAAGTGAATTTGGTAGCAGGTATTG 1267
 DB 1121 GTACTAAATGTTCTGCTGGCTTTTGTGATCAAAAACAACATGTTTACAGCAGGTACTG 1180
 QY 1268 ATACATGCTACTAGTGTAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAA 1327
 DB 1181 ATACATGCTACTAGTGTAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAA 1240
 QY 1328 CTGCTAAAAAATAATATAATG-----TGATTTTCGCTAAATTTTATCAATTTTCT 1378
 DB 1241 AAGTACTCAAAAAGTAAATGCGCTCCACTACTTTTCGCTAAATTTTATCGATTTCT 1300
 QY 1379 TATTATTGATTTCTTATTATTATT 1403
 DB 1301 TATTATTATTCTTCTATTATTATT 1325

RESULT 8

AAA97037

ID AAA97037 standard; DNA; 2486 BP.

XX AAA97037;

XX AC

XX CC

DT 18-DEC-2000 (first entry)

XX DE

XX Nucleotide sequence encoding 48kd i-antigen.

XX KW

XX white spot disease; freshwater fish; immune response; infection control.

XX OS

XX Ichthyophthirius multifiliis.

XX PN

XX WO200046373-A1.

XX PD

XX 10-AUG-2000.

XX PE

XX 04-FEB-2000; 2000WO-US02962.

XX PR

XX 04-FEB-1999; 99US-0118634.

XX PR

XX 02-MAR-1999; 99US-012372.

XX PR

XX 17-MAR-1999; 99US-0124905.

XX PR

XX 27-APR-1999; 99US-0131121.

XX XX

XX (UYGE-) UNIV GEORGIA RES FOUND INC.

XX PA

XX (CORR) CORNELL RES FOUND INC.

XX (CLAR) CLARK T G.

XX PA

XX (DICK/) DICKERSON H W.

PA (LINT/) LIN T.
XX Clark TG, Dickerson HW, Lin T;
XX WPI: 2000-506071/45.
DR
XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
XX Disclosure: Figure 1; 144pp; English.
XX This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens are common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
XX Sequence 2486 BP; 896 A; 310 C; 321 G; 959 T; 0 other;
Query Match 18.0%; Score 252.6; DB 21; Length 2486;
Best Local Similarity 56.7%; Pred. No. 2.2e-46;
Matches 660; Conservative 0; Mismatches 394; Indels 111; Gaps 6;
QY 344 GTGTTAATGTTAGTAATTTTATATGAAATGCTCCAAATTTTATGCAGGTGCTA 403
DB 599 GTGCTGTTAAGGAGAGCTAATGTTAATTAACCTTTCGACCAATATATGCTGTAGAG 658
QY 404 GTACATGCAGCTGTGCGGTAAACAGAGTTGGTGGTCATGCTGCTGTTAATGCCG 463
DB 659 GTATATGTGTACCATGCCAATAAACAAGAGTAGGCTCTGTACCAATGCAGGTGACTTAG 718
QY 464 CTACCATAGTCGGATATGTAAGTCGCGATGTCCTACTGCTGCTGCTGCTGCTGCTG 523
DB 719 CTACTTTAGCCACATAATGCAGTACTTAATGTCTACTGCGCCTGCTGCTGCTGCTG 778
QY 524 TAACCTACTGATTTAGTTAGATCAATTCACAGATGCTGTTAAATGTAGACTTAACCTTTTACT 583
DB 779 TGACAGATGTTTGTATGATGACGCCATATGCTGTTAAATGCAACCTTAACCTTTACT 838
QY 584 ATAATGGTAAATAGTTAATCTCCTTTCAATCCAGTAAAAAGTTAATGCACACCTTGTG 643
DB 839 ATAATGGTGGTCTCCCTTAAGGTGAAGCTCCTGGCGTTTAAAGTTTGTGCTGCTGCTG 898
QY 644 CGGCAATTAACCTGCT-----AATG 664
DB 899 CCGCTGCAGGTGTTGTCGCGCTTACTAGTTAATGTGTACCTGCCAATTAACAAACG 958
QY 665 TTGCTTAAGCTACTTTAGGTAAATGATGCTACAATAACCGCATATGCTAAGCTTGCATGCC 724
DB 959 ATTCTCTGCCACTGCGAGGTGCCCTAAGCTAATTTAGCCACATAATGTAGCAATTAATGTC 1018
QY 725 CTGATGCTATTAAGTGTGCTGGAGT-----AAATTAATGGGTAGCACAAACACTGAT 781
DB 1019 CTACTGGCACTGTACTTGTATGATGAGTGCACCTTGTGTTTAAATATACATGAGCAGCAT 1078
QY 782 GTACTAATTTGCTCCCTAACTTTTACAAATAATATGCTCCTAAT-----826

DB 1079 GTGTTAATGCAGACCTAACTTTTACTATAATGTTGTTCTCTCTAAAGTGAAGCTCCTG 1138
QY 827 -----TCAATCCAGGTAATAGTACAT 847
DB 1139 GCGTTTAAGTTTTCGCTGCTGGTGTCTGCCGCTGCAGGTGTGCTGCCGTACTAGTAAT 1198
QY 848 CCCTACCTTGCAGCAAAATAAGATTATGTTGCTGAAGCCACTGCAGGTGGTGGCGCTA 907
DB 1199 GTGTTACCTTGCAGCAAAATAACAAACGATCTCTCT---GCCACTGCAGGTGCCAAGCTA 1255
QY 908 CTTTAGCCAAATAATGTAATATTCATGCTGCCCTGATGTACTGCAATTCGTAGTGGAGCA 967
DB 1256 ATTTAGCCACATAATGCAGTACTTAATGTCACACTGGCAATTCAGAGCGGAGTGA 1315
QY 968 CTAATATGTAATATTAACACGAATGCTCTAAATTCGCTGCTAACTTTTATTTTATGAT 1027
DB 1316 CACTTGTGTTTGTAGTAATTCATCCACATAATGTTCTTAATGCAATGCTTAATTA 1375
QY 1028 GTAATAATTTCTAGCGAAGTAGTAGATGCAAGCATGTCAGCAAAATAAAGTTTAAG 1087
DB 1376 ATGGTAATTTTCAGCAGGTAAAAGTTAATGTTTAAAGTGTCCAGTAAGTAAACT---A 1432
QY 1088 GCGCTGTAGCAACTGCAGGTGCTACTGCTACTTAAATTTGCAATAATGTCCTTGAATGCC 1147
DB 1433 CTCCAGCACATGCTCCAGGTAAATCTGCTACTTAAAGCCACATAATGTTTGACCACTGTC 1492
QY 1148 CTGCTGGTACTGCTACCCGATGGAACAACATCTACTTATAATAAGCAGCACTCTGAAT 1207
DB 1493 CTGCTGGTACACTGCTGATGATGGAACATCAACTTAATTTTGTAGCTTCCGCAACTGAAT 1552
QY 1208 GTGTTAATGCTGCTGCAACTTTTATATACAAAATAAATGATTTGGTACGAGTATTG 1267
DB 1553 GTACTAATGTTCTGCTGGCTTTTGTGATCAAAACAACTGGTTTACACGAGTACTG 1612
QY 1268 ATACATGCTACTAGTTGTAATAAAAAATTAACCTTCTGGCGCTGAAGCTAATTTACCTGAAT 1327
DB 1613 ATACATGCTACTGAATGCTACTAAATAATTAACCTTCTGGTCCACAGCTAAAGTATATGCTG 1672
QY 1328 CTGCTAAAAAATAATATAATG-----TGATTTGCTTAATTTTATCAATTTTCT 1378
DB 1673 AGCTACTCAAAAGATATAATGCGCTCCACTACTTTCGCTAAATTTTATCGATTTCCT 1732
QY 1379 TATTAATGATTTCTTATTTATTTATT 1403
DB 1733 TATTAATTTCTTTCTATTTATT 1757
RESULT 9
AAA52135
ID AAA52135 standard; DNA; 1326 BP.
XX AAA52135;
XX 04-DEC-2000 (first entry)
XX 48 kDa i-antigen gene.
XX BTU1; beta-tubulin; protein expression system; negative selection;
XX pacilitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
XX live vaccine; Ichthyophthirius multifiliis; immobilization-antigen;
XX i-antigen; freshwater; fish; protozoacide; ds.
XX Ichthyophthirius multifiliis.
XX Key Location/Qualifiers
FH CDS 1..1326
FT /*tag= a
FT /transl_except= "pos:82...84, aa:Gln"
FT /codon= (seq:"TAA", aa:Gln)
FT /product= 48_kDa_i-antigen
FT /partial
XX

PN WO200046381-A1.
XX 10-AUG-2000.
XX 04-FEB-2000; 2000WO-US02966.
XX 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (GAER/) GAERTIG J.
PA (DICK/) DICKERSON H W.
PA (CLAR/) CLARK T G.
XX Gaertig J, Dickerson HW, Clark TG;
XX WPI; 2000-514962/46.
DR P-PSDB; AAY971176.
XX Recombinant expression systems for expressing heterologous nucleic
XX acids and producing recombinant protein, comprises nonpathogenic
XX protozoa such as Tetrahymena resistant to paclitaxel
XX Disclosure; Fig 3B; 83pp; English.
XX Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and
XX BTU2), which encode identical beta-tubulin proteins. Either of these two
XX genes (but not both at once) can be disrupted without a detectable change
XX in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin
XX protein confers increased resistance to microtubule-depolymerizing drugs
XX and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
XX Cells carrying the BTU1-K350M allele can be transformed to paclitaxel
XX resistance by gene replacement of BTU1-K350M with a wild-type BTU1 gene
XX fragment, eliminating the need to incorporate a means for positive
XX selection. Where the host organism is not a T. thermophila mutant
XX containing the BTU1-K350M allele, BTU1:neol construct, which
XX substitutes the coding region of the neol gene (conferring resistance to
XX paromomycin) for that of BTU1, can be used to generate BTU1 gene knockouts
XX and for positive selection. Heterologous nucleic acids (especially
XX successful cell-surface expression that is maintained by way of negative
XX selection. Preferred expression vectors disrupt the BTU1-K350M gene by
XX homologous recombination-mediated insertion of a heterologous nucleic
XX acid, thereby restoring resistance to paclitaxel in the resulting
XX transgenic host. Transgenic ciliated protozoa are useful as live vaccines
XX for stimulating an immune response in a vertebrate. The transgenic
XX protozoan host cells are also useful for producing polyclonal antibodies
XX (claimed). In particular, Tetrahymena expressing Ichthyophthirius
XX multifiliis immobilization-antigen (I-antigen) protein on their surface
XX are effective vehicles for vaccination of freshwater fish against
XX infection by I. multifiliis.
SQ Sequence 1326 BP; 371 A; 252 C; 252 G; 451 T; 0 other;
Query Match 17.9%; Score 251; DB 21; Length 1326;
Best Local Similarity 56.6%; Pred. No. 4.le-46;
Matches 659; Conservative 0; Mismatches 395; Indels 111; Gaps 6;
QY 344 GTGTTAATGTAGATAATTTTAAATGAATGCTCCCAATTTTAAATGAGTGGTACTGCTGATGCGGTA 403
DB 167 GTGCTGCTTAAGGAGAAGCTAATGTAATTAACCTTTCGCAGCAATTAATGCTGCTAGAG 226
QY 404 GTACATGCACAGCTTGTCCGGTAAACAGAGTTGGTGGTGCATTGACTGCTGCTGATGCGG 463
DB 227 GTATATGCTACCATGCCAATAAATACAGATAGGCTCTGTTACCAATGCAGGTGACTTAG 286
QY 464 CTACCATAGTCGCATAATGTAACGTCGCATGCTCTTACTGGTACTGCACTTGTATGATGGAG 523
DB 287 CTACTTTAGCCACATAAATGCGACTACTTAATGCTCTACTGGCAGCTGCACTTGTATGATGGAG 346
QY 524 TAACTACTGATTATGTTAGATCATTCACAGAATGTTGTAATGTAGACTTAACTTTTACT 583

Db 347 TGACAGATGTTTTTGTATAGATCAGCCGCATAATGTGTTAAATGCAAACTTAACCTTTTACT 406
QY 584 ATAATGGTAATATGCTAATATCTCCCTTTCAATCCAGGTAAGTTAATCCACACCTTGTGC 643
Db 407 ATAATGGTGGTCTCTCTTAAGTGAAGCTCCCTGGCGCTTTAAGTCTTGTCTGGTGGTGC 466
QY 644 CGGCAATTAACCTGCT-----AATG 664
Db 467 CGCTGCAGGTGTTGCTGCCGTTACTAGTTAATGTGTACTCTTGCCAACTAAACAAAAGC 526
QY 665 TTGCTTAAGCTACTTTAGTAAATGATGCTACAAATACCCGCATAATGTAACGTTGGATGCC 724
Db 527 ATTCCTCTGCCACTGCAGCTAAGCTAATTTTAGCCACATAATGTAGCAATTAATGTC 586
QY 725 CTGATGGTACTATAAGTCTGCTGGAGT---AAATAATTTGGGTAGCACAAAACACTGAAT 781
Db 587 CTACTGGCACTGTTGATGATGGAGTGACACTTGTGTTTAAATACATCAGCCACATTAAT 646
QY 782 GTACTAATTTGCTCTCTAATCTTTTACAATAATTAATGCTCTAATTT-----826
Db 647 GTGTTAAATGCAGACCTAATCTTTTACTATAATGGTGGTCTCTCTTAAGGTGAAGCTCCTG 706
QY 827 -----TCANTCCAGGTAATAGTACAT 847
Db 707 GCGTTTAAAGTTTTGCTGCTGCTGCTGCCGCTGCAGGTGTTGCTGCCGTTTACTAGTTAAT 766
QY 848 GCTACTCTTGGCCCAACAATAAAGATTATGGTGTGAAGCCACTGCAGGTGGTCCGCTA 907
Db 767 GGTGACCTTGGCAATAAACAACAAAGATTTCTCT---GCCACTGCAGGTGCCCTAAGCTA 823
QY 908 CTTTACGCAATAATGTAATTTGCAATCCCTGATGGTACTGCAATTTGCTAGTGGAGCAA 967
Db 824 ATTTAGCCACATAATGCACTACTTAATGTCCAACCTGGCACTGCAATTCACAGCGAGTGA 883
QY 968 CTAATTTATGTAATATTAACACAGATGCTAAATTTGCTGCTAACTTTTATTTTGTAGT 1027
Db 884 CACTTGTGTTTTAGTAATTCATCCACATAATGTTCTTAATGCAATTTGCTAATTTTACTTTTA 943
QY 1028 GTAATAATTTCTAGCGAAGATAGTAGATCAAGCATGTCCAGCAAAATAAAGTTTAAAG 1087
Db 944 ATGGTAATTTTGAAGCAGGTAAAAGTTAATGTTTAAAGTGCAGTAAAGTAAACT---A 1000
QY 1088 GCGTGTAGCAACTGCAGGTGGTACTGCTACTTTAATTTGCAATAATGTCCTTGAATGCC 1147
Db 1001 CTCAGCACATGCTCCAGGTAAATGCTACTTAAGCCACATAATGTTTGACCCACATGTC 1060
QY 1148 CTGCTGTACTGCTACTCACCGATGGAACAACATCTACTTATAATAAAGCAGCATCTGAAT 1207
Db 1061 CTGCTGGTACAGTACTTGCATGATGGAACATCACTAATTTTGTAGCTTCCGCAACTGAAT 1120
QY 1208 GTGTTAATGTGCGCAACTTTTATATAACAAATAAAGTAACTGATTTGGGTAGCAGGTATG 1267
Db 1121 GTACTAATGTTCTGCTGGCTTTTGTGATCAAAAACAACACTGGTTTACACCAGTACTG 1180
QY 1268 ATACATGTACTAGTTGTAATAAATAAATAACTTCTGCGCTGGAAGCTTAATTTTACCTGAAT 1327
Db 1181 ATACATGTACTGAATGTAATAAATAAATAACTTCTGCGCTGGAAGCTTAATTTTACCTGAAT 1240
QY 1328 CTGCTAAAAAATATATAATG-----TGATTTTTCGCTAATTTTATCAATTTTCTCT 1378
Db 1241 AAGCTACTCAAAAAGTATAATGCGCTCCACTACTTTCGCTAATTTTATCGATTTCTCT 1300
QY 1379 TATTATTGATTTCTTATTATTATTATT 1403
Db 1301 TATTATTATTCTTCTATTATTATT 1325
RESULT 10
AA52134
ID AA52134 standard; DNA; 2811 BP.
XX
AC AA52134;

```
XX
DT
XX
DE
XX
KW BTUL; beta-tubulin; protein expression system; negative selection;
KW paclitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
KW live vaccine; Ichthyophthius multifiliis; immobilization-antigen;
KW i-antigen; freshwater; fish; protozoa; ds.
XX
OS Chimeric - Tetrahymena thermophila.
OS Chimeric - Ichthyophthius multifiliis.
XX
FH Location/Qualifiers
CDS 988..2325
FT /*tag= a
FT /product= 48_kDa_i-antigen
FT /transl_except= (pos:1078..1080, aa:Gln)
FT /codon= (seq:"TAA", aa:Gln)
FT misc_feature 991..999
FT /*tag= b
FT /note= "Cloning residual from parent construct HHFl::neo"
XX
PN WO200046381-A1.
XX
PD 10-AUG-2000.
XX
XX 04-FEB-2000; 2000WO-US02966.
XX
XX 04-FEB-1999; 99US-0118634.
XX 02-MAR-1999; 99US-0122372.
XX 17-MAR-1999; 99US-0124905.
XX 27-APR-1999; 99US-0131121.
XX
XX (UVE-) UNIV GEORGIA RES FOUND INC.
XX (GAER/) GAERTIG J.
XX (DICK/) DICKERSON H W.
XX (CLAR/) CLARK T G.
XX
XX Gaertig J, Dickerson HW, Clark TG;
XX
XX WPI; 2000-514962/46.
XX P-PSDB; AAY97176.
XX
XX Recombinant expression systems for expressing heterologous nucleic
XX acids and producing recombinant protein, comprises nonpathogenic
XX protozoa such as tetrahymena resistant to paclitaxel.
XX
XX Example 1; Fig 2B; 83pp; English.
XX
XX Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and
XX BTU2), which encode identical beta-tubulin proteins. Either of these two
XX genes (but not both at once) can be disrupted without a detectable change
XX in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin
XX protein confers increased resistance to microtubule-depolymerizing drugs
XX and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
XX Cells carrying the Btui-lk350M allele can be transformed to paclitaxel
XX resistance by gene replacement of Btui-lk350M with a wild-type BTU1 gene
XX fragment, eliminating the need to incorporate a means for positive
XX selection. Where the host organism is not a T. thermophila mutant
XX containing the Btui-lk350M allele, BTU1::neo1 construct, which
XX substitutes the coding region of the neo1 gene (conferring resistance to
XX paromomycin) for that of BTU1, can be used to generate BTU1 gene knockouts
XX and for positive selection. Heterologous nucleic acids (especially
XX encoding antigenic polypeptides) can be inserted into a BTU1 gene for
XX successful cell-surface expression that is maintained by way of negative
XX selection. Preferred expression vectors disrupt a heterologous nucleic
XX homologous recombination-mediated insertion of a heterologous nucleic
XX acid, thereby restoring resistance to paclitaxel in the resulting
XX transgenic host. Transgenic ciliated protozoa are useful as live vaccines
XX for stimulating an immune response in a vertebrate. The transgenic
XX protozoan host cells are also useful for producing polyclonal antibodies
XX (claimed). In particular, Tetrahymena expressing Ichthyophthius
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CC multifiliis immobilization-antigen (i-antigen) protein on their surface
CC are effective vehicles for vaccination of freshwater fish against
CC infection by I. multifiliis.
XX
SQ Sequence 2811 BP; 957 A; 438 C; 434 G; 982 T; 0 other;
Query Match 17.9%; Score 251; DB 21; Length 2811;
Best Local Similarity 56.6%; Pred. No. 5.1e-46;
Matches 659; Conservative 0; Mismatches 395; Indels 111; Gaps 6;
QY 344 GTGTTAAATGTAGAAATTAATTTTATATGAAATGCTCCAAATTTAATACGAGTGCTA 403
Db 1163 GTGCTGCTTAAAGGAGAAGCTAATGTAATTAACCTTTTCGACGAAATGCTCTAGAG 1222
QY 404 GTACATGCACAGCTTGTCCGGTAAACAGAGTTGGTGGTCATTGACTGCTGGTAAATCCG 463
Db 1223 GTATATGTGTACCAATGCAAAATAAACAGAGTAGGCTCTGTTACCAATCAGGTGACTTAG 1282
QY 464 CTACCATAGTCGCATAAATTAACGTCGCAGATGCTCTACTGCTGCTGCTGCTGCTGCTG 523
Db 1283 CTACTTTTAGCCACATAATGCAGTACTTAATGTCTCTACTGTCACCTGCTGCTGCTGCTG 1342
QY 524 TAACTACTGATATGTTAGATCATATTCACAGAAATGTTAAATGTAGACTTAACCTTTTACT 583
Db 1343 TGACAGATGTTTTTGATAGATCAGCGCATATGTTAAATGTAGCAACCTTAACCTTTTACT 1402
QY 584 ATAATGCTAATATGTAATACTCTCTTTCAATCCAGGTAAAGTTAATGCACACCTTGTCT 643
Db 1403 ATAATGCTGTTCTCTCTTAAGGTGAAGCTCTTGGGCTTTAAGTTTTTGTGCTGCTGCTG 1462
QY 644 CGGCAATTAACCTGCT-----
Db 1463 CCGCTGCAGGTGTTGCTGCTGCTTACTAGTTAATGTGTAGCTTGGCCAACATAACAAAAACG 1522
QY 665 TTGCTTAAAGCTACTTTAGGTAAATGATGCTACAAATAACCCGATAATGTAACGTTGCTGCC 724
Db 1523 ATTCTCTGCGCACTGCAGGTGCTTAAATGTAACGCAATGTAAGCAATTAATGCTC 1582
QY 725 CTGATGCTACTATAAGTGTCTGCTGGAGT---AAATTAATTTGGGTAGCACAAAACACTGAAT 781
Db 1583 CTACTGGCACTGTACTTGTATGATGGAGTGACACTTTGTTTTTAATACATCAGCCACATAT 1642
QY 782 GTACTAATTTGCTCCTTAACCTTTACAATAATAATGCTCCTTAAT-----AATG 826
Db 1643 GTGTAAATCGACACCTAATCTTTTACTATAATGGTGGTCTCTCTTAAGGTGAAGCTCCTG 1702
QY 827 -----TCAATCCAGGTAAATAGTACAT 847
Db 1703 GCGTTTAAAGTTTTTGTGCTGGTGTGCTGCCGCTGCAGGTGTTGCTGCCGTTACTAGTTAAT 1762
QY 848 GCCTACCTTGCACGCAAAATAAGATTAATGCTGCTGAAGCCACTGCAGGTGCTGCGGCTA 907
Db 1763 GTGTACCTTGCCAAATAAACAACAAACGATTCCTCT---GCCCTGCGAGGTGCTTAAGCTA 1819
QY 908 CTTTAGCCAAATATGTAATTTGTCATGCCCTGATGCTGCTGCTGCTGCTGCTGCTGCTGCTG 967
Db 1820 ATTTAGCCACATAATGACAGTACTTAATGTCCAATGCTGCAATTCAGGAGGTGA 1879
QY 968 CTAATTTAGTAATATTATAACAGAAATGCTTAATTTGCTGCTGCTGCTGCTGCTGCTGCTG 1027
Db 1880 CACTTGTGTTTGTAGTAATTCATCCACATAATGTTCTTAATGCAATTCGTAATTAATCTTTT 1939
QY 1028 TATAATAATTTCTAGCAGGAGTAGTAGCAAGCATGTCAGCAAAATAAAGTTTAAG 1087
Db 1940 ATGTTAATTTTGAAGCAGGTAAAGTTAAATGTTAAAGTGTCCAGTAGTAAACT---A 1996
QY 1088 GCGCTGTAGCAACATGTCAGGTGCTGCTACTCTTTAATTTGATTAATGTGCCCTTTGAATGCC 1147
Db 1997 CTCAGCACATGCTCCAGGTAATCTGCTACTTAAAGCCACATAATGTTGACACACATGTC 2056
QY 1148 CTGCTGGTACTGCTACTCACCAGTGGACACATCTACTTATAAATGAAGCAGCATCTGAAT 1207
Db 2057 CTGCTGTACAGTACTTGTATGATGGAACATCACTAATTTTGTAGCTTCCGCAACTGAAT 2116
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QY 1208 GTGTTAAATGCTGCCAACTTTTATATACAAAATAAAGTATGGGTAGCAGGTATG 1267
 II IIIII IIII IIIII IIII IIII IIII IIII IIII IIII IIII IIII
 Db 2117 GTACTAATGTCGCTGGCTTTTTCATCAAAAACAACCTGTTTACAGCAGGTACTG 2176
 QY 1268 ATACATGTACTAGTGTGAATAAATAAATACTTCTGGCGCTGAAGCTAATTTACCTGAAT 1327
 IIIIIII IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII
 Db 2177 ATACATGTACTGAATGACTAAAAATAAATACTTCTGGTCCACAGCTAAGTATATGCTG 2236
 QY 1328 CTGCTAAAAAATATATAATG-----TGATTCGCTAATTTTATCAATTTCT 1378
 IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII
 Db 2237 AAGTACTCAAAAGTAAATATGCGCTCCACTACTTTTCGTAATAATTTTATCGATTCT 2296
 QY 1379 TATTAATGATTTCTTATTTATTTAT 1403
 IIIII IIIII IIIII IIIII IIIII IIIII IIIII IIIII IIIII
 Db 2297 TATTATTATTTCTTCTATTATT 2321

RESULT 11
 AAA97075
 ID AAA97075 standard; DNA; 138 BP.
 XX AC AAA97075;
 XX AC AAA97075;
 DT 18-DEC-2000 (first entry)
 XX G5 synthetic gene synthesis primer 3205.
 DE Immobilisation antigen; i-antigen; Ichthyophthiriasis; vaccine;
 XX white spot disease; freshwater fish; immune response; infection control;
 KW PCR primer; ss.
 XX Synthetic.
 XX WO200046373-A1.
 PN 10-AUG-2000.
 XX 04-FEB-2000; 2000WO-US02962.
 XX 04-FEB-1999; 99US-0118634.
 PR 02-MAR-1999; 99US-0122372.
 PR 17-MAR-1999; 99US-0124905.
 PR 27-APR-1999; 99US-0131121.
 XX (UYGE-) UNIV GEORGIA RES FOUND INC.
 PA (CORR) CORNELL RES FOUND INC.
 PA (CLAR/) CLARK T G.
 PA (DICK/) DICKERSON H W.
 PA (LINT/) LIN T.
 XX Clark TG, Dickerson HW, Lin T;
 PI WPI; 2000-506071/45.
 XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
 PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
 PT infection in fish .
 PS Disclosure; Figure 12; 144pp; English.
 XX This invention relates to novel i-antigen polypeptide sequences.
 CC I-antigens or immobilisation antigens are common to a variety of
 CC hymenostomatid ciliates and their expression varies in response to
 CC environmental stimuli. This invention relates to i-antigens in
 CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
 CC of freshwater fish causing Ichthyophthiriasis or white spot disease. The
 CC invention includes two polypeptide and polynucleotide sequences for two
 CC i-antigens, of 48 and 55 kD. Also included in the invention are
 CC antibodies capable of binding to the nucleotide sequences and a method
 CC for identifying I. multifiliis serotypes using the nucleotide sequences.
 CC A composition (containing the i-antigen nucleotide) capable of eliciting
 CC an immune response in fish is useful for prophylaxis, treatment or for

CC controlling I. multifiliis infection in fish. Polynucleotide or protein
 CC vaccines comprising a portion of the amplified product encoding an
 CC antigenic i-antigen polypeptide obtained is also useful for treating or
 CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
 CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
 CC fragments identified in the invention. Sequences AAA97043-A97064
 CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
 CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
 CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
 XX Sequence 138 BP; 30 A; 43 C; 32 G; 33 T; 0 other;
 SQ Query Match 5.2%; Score 73; DB 21; Length 138;
 Best Local Similarity 70.8%; Pred. No. 6.1e-07;
 Matches 97; Conservative 0; Mismatches 40; Indels 0; Gaps 0;

QY 313 GCAACAGATTATGCAGCAATAATCAACAGAAATGTGTTAATTTAGATAATTTTATATAAT 372
 II IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII
 Db 1 GCTACCGACTACGCTGCTATCATCACCGAGTGTGTAACATCGCATCAACTTCTACAC 60
 QY 373 GAAATGCTCCAAATTTAATGCAGGTGCTAGTACATGCACAGCTTGCCGGTAAACAGA 432
 II IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII
 Db 61 GAGAACGCTCTTAACCTCAACGCTGGAGCTTCTACTGTACCGCTTGCTGTGAACCC 120
 QY 433 GTTGGTGGTGCATTGAC 449
 II IIII IIII IIII
 Db 121 GTGGGAGGAGCTCTGTGAC 137

RESULT 12
 AAA97076/C
 ID AAA97076 standard; DNA; 123 BP.
 XX AC AAA97076;
 XX AC AAA97076;
 DT 18-DEC-2000 (first entry)
 XX G5 synthetic gene synthesis primer 3206.
 DE Immobilisation antigen; i-antigen; Ichthyophthiriasis; vaccine;
 KW white spot disease; freshwater fish; immune response; infection control;
 KW PCR primer; ss.
 XX Synthetic.
 XX WO200046373-A1.
 PN 10-AUG-2000.
 XX 04-FEB-2000; 2000WO-US02962.
 XX 04-FEB-1999; 99US-0118634.
 PR 02-MAR-1999; 99US-0122372.
 PR 17-MAR-1999; 99US-0124905.
 PR 27-APR-1999; 99US-0131121.
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 XX Clark TG, Dickerson HW, Lin T;
 PI WPI; 2000-506071/45.
 XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
 PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
 PT infection in fish .
 PS Disclosure; Figure 12; 144pp; English.
 XX This invention relates to novel i-antigen polypeptide sequences.
 CC


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CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing Ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
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CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB23893-B25906 represent i-antigen protein and peptide sequences.
XX
XX Sequence 100 BP; 16 A; 35 C; 24 G; 25 T; 0 other;
XX
XX Query Match 4.5%; Score 62.8; DB 21; Length 100;
XX Best Local Similarity 77.6%; Pred. No. 0.0001;
XX Matches 76; Conservative 0; Mismatches 22; Indels 0; Gaps 0;
XX
QY 166 GCTGCTGCTTTCGTTCTGCTGCTAGTACGTGTACACCTTGTCATATAAAAGATGCT 225
DB ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 2 GCTGCTGCTTTCGTTCTGCTGCTGAGCTTCTACCTGTACCCCTTGCTCAGAGGAGCGCT 61
QY 226 GGTGCTTAACCAATCCACCTGCTACTGCTAATTTAGT 263
DB ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 62 GGAGCTCAGCGCTAACCGCTCTGCTACCGCTAACCTGGT 99
RESULT 15
ID AAA97080/c
XX AAA97080 standard; DNA; 100 BP.
XX AAA97080;
XX
XX 18-DEC-2000 (first entry)
XX
XX G5 synthetic gene synthesis primer 3210.
DE
XX
XX Immobilisation antigen: i-antigen; Ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control;
KW PCR primer; ss.
XX Synthetic.
XX
XX WO200046373-A1.
XX
XX 10-AUG-2000.
PD
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XX PF 04-FEB-2000; 2000WO-US02962.
XX
XX 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
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PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
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CC of freshwater fish causing Ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
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CC antibodies capable of binding to the nucleotide sequences and a method
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CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
XX Sequence 100 BP; 22 A; 17 C; 32 G; 29 T; 0 other;
XX
XX Query Match 4.5%; Score 62.8; DB 21; Length 100;
XX Best Local Similarity 77.6%; Pred. No. 0.0001;
XX Matches 76; Conservative 0; Mismatches 22; Indels 0; Gaps 0;
XX
QY 754 AATAATTGGGTAGCACAAACACCTGAATGTACTAATTTGCTCTTAACATTAAT 813
DB ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 99 AACAACTGGGTGGCTCAGAACACCCAGGTGTACCAACTGTCTCTTAACATTAAC 40
QY 814 AATGCTCTCTAATTTCAATCCAGGTAATAGTACATCCCT 851
DB ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 39 AACGCTCTTAACCTTCAACCCCTGGAAACCTCTACCTGTCT 2
Search completed: February 16, 2003, 17:00:21
Job time : 224.022 secs
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